

THE UNDOING EXPERIENCE:  
ANTECEDENTS, CONSEQUENCES, AND INDIVIDUAL DIFFERENCES

by

CHRISTOPHER G. DAVIS

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Department of Psychology

The University of British Columbia  
Vancouver, Canada

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Data from role–play studies suggest that when negative events occur, people tend to mentally simulate alternative, counterfactual scenarios wherein the event does not occur. The present research investigates the extent to which individuals generate counterfactuals following their own significant life events. Data from 174 undergraduates, each describing two of their most significant life events, indicate that 82% of events were cognitively undone at least "sometimes" within the first month after the event's occurrence (reported retrospectively). Factors that predicted an absence of undoing included events rated (by subjects) as less significant at the time of their occurrence, not the subject's fault, and inevitable. While two personality constructs, neuroticism and ruminativeness, as well as the situational factors noted above, predicted how frequently events were undone within the first month of their occurrence, only the personality constructs predicted frequency of current undoing. The frequency of undoing at the time of the event was also correlated with subjects' role–playing estimates of how frequently they would undo a hypothetical scenario, while current frequency of undoing was correlated with how long role–playing subjects estimated they would continue to undo the hypothetical scenario. In sum, these results suggest that situational and personality factors play different and independent roles in the undoing process. Situational factors were most predictive of the likelihood and initial frequency of undoing, while dispositional factors were most predictive of the persistence of the undoing thoughts.

Abstract .....	ii
List of Tables .....	iv
Acknowledgements .....	v
Introduction .....	1
Antecedents .....	1
Consequences .....	5
Individual Differences .....	7
The Present Study .....	8
Method .....	11
Subjects .....	11
Procedure .....	11
Questionnaire Instruments .....	12
Ruminative Memories of Life Events Questionnaire .....	12
Personality Questionnaire .....	14
Results .....	16
Events .....	16
Frequency of Undoing .....	16
Predictors of a Lack of Undoing .....	18
Consequences of Undoing .....	19
Consistency in Undoing and the Role of Dispositions .....	20
Discussion .....	24
Limitations of the Study .....	29
References .....	32

Table 1: Summary of Significant Life Events by Frequency .....	36
Table 2: Discriminant Function Analysis Predicting Events	
Undone from Events Not Undone .....	37
Table 3: Self-Reports of Likelihood of Recurrence by Event .....	38
Table 4: Personality Correlates of Frequency of Undoing .....	39
Table 5: Regression of Neuroticism and Disposition to	
Ruminate on Frequency of Undoing .....	40
Table 6: Hierarchical Regression of Ruminativeness and Situation	
Variables on Frequency of Undoing at Time of Event .....	41
Table 7: Hierarchical Regression of Ruminativeness and Situation	
Variables on Current Frequency of Undoing .....	42

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## Introduction

When people have experienced an unexpected negative event, or have narrowly missed a desired one, they often find themselves "undoing" the outcome by mentally simulating what might or could have happened. For example, if you came within one digit of winning the grand prize in a lottery, you might find it difficult not to consider the thought that if you had possessed the next number instead, you would be a wealthy person (Heider, 1958).

The extent to which one can imagine the possibility of purchasing the winning ticket is thought to influence the intensity of the affective reaction. Thus, if the winning ticket was purchased by the person next to you in line, you might be more distressed by your failure to win than if the winning ticket had been purchased several days after yours from a different vendor (Turnbull, 1981; see also Miller, Turnbull, & McFarland, 1990).

## Antecedents

Research employing a role-play design suggests that undoing thoughts, or counterfactuals, are a function of the perceiver's construal of the situation surrounding the negative event. Kahneman and Miller (1986), for instance, suggest that counterfactual alternatives are constructed from the most salient, yet mutable events preceding a negative outcome. Hence, if a salient incident in the causal sequence of events leading up to the outcome is perceived to be immutable (i.e., it cannot plausibly be imagined otherwise), research suggests it will not be targeted for undoing (Kahneman & Miller, 1986; Wells, Taylor, & Turtle, 1987). If all events in a causal chain are perceived to be immutable, or unchangeable, then the negative event will

likely be perceived as inevitable, and therefore will not be undone (Wells & Gavanski, 1989; Wells et al., 1987).

Research has demonstrated that the perceived mutability of an event, or the ease with which counterfactual alternatives can be generated, along with the degree of negative emotional reaction, are determined in part by the abnormality or exceptionality of the event's preceding circumstances (Kahneman & Miller, 1986; Kahneman & Tversky, 1982; Miller et al., 1990). For example, Miller and McFarland (1986) presented subjects with one of two scenarios in which an innocent bystander was seriously injured in the attempted robbery of a convenience store that he either typically or rarely frequented. These authors found that when the victim was engaging in an unusual behavior (visiting a store he rarely frequented), he received more sympathy (i.e., he was recommended more compensation) than when he was engaging in a typical behavior (visiting a store he frequented often), presumably because sympathizers found it easier to undo the more mutable, unusual behavior.

Mutability may also be determined by the omission or commission of actions. Research has demonstrated that consequences of actions (commissions) are more likely to be perceived as mutable, and are thus more likely to evoke stronger emotional responses, than are consequences of a failure to act (omissions) (Gleicher et al., 1990; Kahneman & Miller, 1986; Miller et al., 1990). For example, Landman (1987) described a scenario wherein a student, George, switches sections of his Biology course and then obtains a failing grade while Paul considers switching sections, but decides against it, and then receives a failing grade at the conclusion of the course. Landman found that most subjects felt that George (who acted) would feel worse than Paul (who did not act), ostensibly because it was easier for George to imagine a plausible



alternative (i.e., not acting) than it was for Paul, who would have had to imagine taking an action when in reality none was taken.

With the exception of one study (Davis, Lehman, Thompson, Silver, & Wortman, 1991), the evidence that has been produced in support of these hypotheses (i.e., that people undo negative events, and that this undoing is based, in part, on the mutability of salient events in the causal sequence) has been based exclusively on responses to hypothetical scenarios by role-playing subjects. Davis et al. (1991) attempted to establish some ecological validity to these claims by asking three samples of actual victims if they had ever had thoughts of undoing in relation to their traumatic event. Two of their samples comprised bereaved individuals (one sample of respondents who had lost a spouse or child in a motor vehicle accident 4–7 years earlier and one sample of parents who had recently lost a child to Sudden Infant Death Syndrome) and the third sample included stroke patients and their caregivers. In support of the scenario-based literature, Davis et al. found that more than half of the respondents in each of the samples (and 70% of the respondents in the SIDS sample) reported having thoughts of undoing. However, these authors also found that most of the respondents reported undoing a usual event, as opposed to an exceptional event, and reported wishing they had acted (i.e., an omission) as opposed to wishing they had not acted (i.e., a commission).

While these data do not disconfirm the postulates developed by the scenario researchers (due, for instance, to uncontrolled differences in base rates for usual and exceptional events), they do raise the possibility that other factors may be involved in determining the likelihood that an event will be undone. For example, the more personally significant an event is, the more one may be motivated to be thorough in

one's search for a counterfactual that undoes the event. That is, when a passive observer learns of another's unfortunate outcome (by reading a hypothetical scenario), s/he shorthandedly evaluates the probability that the outcome could have been avoided by considering the mutability of significant, salient events in the causal sequence (Kahneman & Miller, 1986). If counterfactuals are obvious (e.g., the victim took an unusual route, or acted when no action was necessary), then the event will be undone. If no obvious counterfactuals come to mind, then the event may be judged to be essentially immutable, or unavoidable, and will therefore not be undone. However, actual victims,<sup>1</sup> who are deeply affected by their stressful life event, may be likely to go to greater lengths to imagine how the event might not have happened because the event has much more significance to them; thus they will likely delve beyond the most salient antecedent events, and perhaps exaggerate the probability that a given, even usual, incident might not have happened. To the victimized, then, events deemed as unavoidable (i.e., events where no counterfactual can be realistically envisioned) may be relatively rare. This may be owing to the fact that, while passive observers might simply prefer that the outcome was different, the victimized actively wish the outcome was different.

Another event characteristic that may importantly predict whether undoing occurs is the inevitability of the event. Wells and Gavanski (1989), for instance, have presented scenario data suggesting that events that are highly constrained (and hence unavoidable) are less likely to generate counterfactuals than are events that are less constrained. That is, for events that are perceived as unavoidable, such as the death

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<sup>1</sup>The term "victim" is used here to refer to any person who experiences a traumatic event, including such events as divorce, police arrest, and the death of a loved one.

of an ailing loved one, the generation of a plausible counterfactual that undoes the outcome may be quite difficult, if not impossible. Presumably, everything one (or others) could have done has been done.

In contrast, an event factor that should increase the likelihood of undoing is the degree of fault attributed to oneself. If one accepts fault for an outcome, one almost certainly can imagine how the outcome might not have happened.

### Consequences

The use of real-life victim data, as opposed to data derived from scenario research, has naturally focused attention on additional aspects of the undoing process. For instance, by considering undoing in real-life situations, one can investigate the psychological consequences of undoing. Based on their scenario data, counterfactual researchers have suggested that undoing negative events heightens negative affect (Kahneman & Miller, 1986; Landman, 1987; Miller & Turnbull, 1990). In the prototypic study (Kahneman & Tversky, 1982), for example, subjects predicted that the hypothetical target who acted unusually immediately before a negative event would be more distressed than the target who followed his or her usual routine.

Among the victimized, however, undoing may not always yield such negative consequences. Preliminary evidence from Davis et al. (1991) suggests that the psychological consequences of undoing may depend on the characteristics of the event. For instance, with negative events that have the potential to recur, such as a stroke, undoing may aid the coping process by suggesting a plan of action that will prevent future victimizations, and may thus be viewed as less disturbing and less distressing to the victim (Janoff-Bulman, 1979; Taylor & Schneider, 1989). If one can learn how to avoid a recurrence, the undoing may even be viewed in somewhat

comforting terms. In support of this, Davis et al. found that stroke patients and caregivers who thought that the stroke could have been avoided, if only they had exercised more (or had a regular medical check-up, etc.), were more optimistic that they could regain their health, re-integrate into society, and avoid a subsequent, perhaps fatal, stroke, compared to those who did not undo the event at all, or those who reported undoing the event in such a way that did not suggest that one could have avoided the stroke.

For other life events, such as unexpected bereavement, avoiding a recurrence is not a psychologically meaningful issue. In such cases, undoing is likely to be dysfunctional because it does not provide a sense of control over the future. Rather, it leaves one dwelling on an upward comparison between reality and the hypothetical alternative that can never be attained (unlike the attainable upward comparison described above; Davis et al., 1991). Such comparisons may make the individual feel more frustrated and distraught, and hence, render him or her less able to cope with the stressor. Thus, the act of undoing in the absence of any possibility for future control may promote a backward, rather than forward, focus; one which is likely to stress to the individual how unfortunate he or she is.

In sum, the event (and the individual's perception of it) may influence not only the likelihood that undoing occurs, but also whether it has functional or dysfunctional consequences. If undoing can provide a sense of future control, then its effects may be less negative, and perhaps positive; whereas in the absence of future control possibilities, its effects may be exclusively negative.

### Individual Differences

Although Davis et al. (1991) observed that a majority of respondents had undone their traumatic event, the range of responses in terms of frequency and persistence of undoing was considerable. A number of respondents reported undoing seemingly usual incidents even years after the event, while others reported never undoing at all. One possible explanation for some of this variability, in addition to situational characteristics, is that individuals may differ reliably in their propensity to undo, or in their ability to dismiss undoing thoughts. For instance, some individuals may be dispositionally non-ruminative, and therefore may accept the traumatic event and its implications without focusing a great deal on how the event could have been avoided (see, for example, Wortman & Silver, 1989; see also Cacioppo & Petty's [1982] description of those with a low need for cognition). Highly ruminative people, on the other hand, may be unusually persistent in seeking counterfactuals, even for seemingly unavoidable events. As well, these high ruminators, and those possessing associated personality traits, may be particularly persistent with their undoing thoughts.

While, understandably, the concept of individual differences in undoing has not yet been considered within the counterfactual literature, a number of personality researchers have identified dimensions of personality that may underlie a propensity to undo. For instance, several researchers have noted that people high on neuroticism are more vulnerable to stress than are people low on neuroticism (e.g., Eysenck, 1988; McCrae & Costa, 1987; Watson & Pennebaker, 1989). Neurotic individuals are described by McCrae and Costa (1987) as anxious worriers, with a propensity to use inappropriate coping strategies, including wishful thinking, to deal with their anxiety and negative emotions.

However, because neuroticism is a broad-band personality dimension, subsuming other dimensions such as low self-esteem, trait anxiety, and depression, its predictive utility may be hampered by facets that may not be associated with undoing. Thus, while the broad-band measure may be useful as a first step, identifying a "propensity to undo" may require instruments assessing more specific facets within this general construct.

One promising avenue in this direction is a measure developed by Trapnell (1991) to assess a dispositional tendency to ruminate. Associated with neuroticism (correlating approximately .6 with the Neuroticism subscale of McCrae and Costa's NEO personality inventory), Trapnell (personal communication, June, 1991) notes that ruminativeness is distinct from other facets of neuroticism, correlating, for example, only approximately .3 or .4 with measures of self-esteem and depression. To the extent that these other facets are not as closely allied with a propensity to undo, the more specific rumination scale should prove a better predictor of undoing than the more general neuroticism construct.

The discussion above does not necessarily imply that all, or even most, people who report undoing are highly neurotic or ruminative. In fact, undoing appears to be a fairly common response to unexpected negative events (Davis et al., 1991; Miller & Turnbull, 1990). Rather, it may be that neurotic or ruminative individuals, while perhaps being somewhat more likely to undo in the first place, are more likely to be unable or unwilling to dispense with the dysfunctional undoing thoughts.

### The Present Study

The purpose of this research is to evaluate the role of situation and personality factors in the occurrence, frequency, and persistence of undoing with respect to real-

life events. Undergraduates were recruited to complete a survey called the Ruminative Memories of Life Events Questionnaire. In the survey, they were asked to describe two of the most significant negative events they have experienced, including a brief description of the incidents and circumstances leading up to the negative event. As well, subjects were asked whether or not, and how frequently, they thought of undoing each event within the first month of its occurrence, and how frequently they currently have these thoughts (for each event).

In addition to the event-related data, individual difference data were collected from a large subset of subjects who also participated in a separate study of personality structure. Subjects who participated in the personality structure study completed validated personality scales assessing the five broadest dimensions of personality (i.e., agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience), as well as a variety of more specific constructs within these broad dimensions (e.g., Trapnell's rumination scale). Subjects participating in the personality study also read and responded to a brief hypothetical undoing scenario. The scenario described a university student who became involved in a car accident as s/he drove to school. Subjects were asked how frequently, if at all, they would undo the accident if they were the target person in the scenario, and, if applicable, what they would undo and for how long they would continue to undo the event.

In sum, these data will address questions relating to the antecedents and consequences of undoing, as well as the role of individual differences in neuroticism and tendency to ruminate. Concerning antecedents of undoing, it is proposed that whether or not undoing is reported will depend on the significance of the event to the individual, as well as the existence of mutable events to undo (e.g., unusual events

preceding the negative outcome). Event characteristics, such as the event's inevitability and the degree of personal fault assumed by the subject, should also independently predict whether or not, and how frequently, undoing occurs.

The consequences of undoing may also depend on characteristics of the event. Specifically, following Davis et al. (1991), it is anticipated that among events that have the potential to recur, undoing may be viewed by the subject as more comforting, less distressing ("depressing," anxiety provoking," "guilt-inducing," etc.) and less disruptive ("uncontrollable" and "distracting") relative to those events that cannot recur, because undoing such former events might suggest a way to avoid a recurrence.

While situational factors are hypothesized to predict whether undoing occurs, and how distressing the undoing thoughts are, the frequency and persistence of undoing is expected to be, at least partly, a function of personality dimensions such as neuroticism and one's propensity to ruminate. While it is anticipated that undoing, as a construct, may be most directly associated with the neuroticism factor of the underlying dimensions of personality, the degree of association between undoing variables and the other four dimensions (agreeableness, conscientiousness, extraversion, openness to experience) will also be evaluated.

Although, of the Big 5 dimensions of personality, neuroticism is expected to be most correlated with one's frequency of undoing for life events, dispositional ruminativeness should be the better predictor due to the rumination scale's specificity and conceptual similarity to undoing (relative to other facets of neuroticism).



## Method

### Subjects

One hundred seventy-four undergraduate students (121 female, 53 male) from the psychology subject pool at the University of British Columbia completed the Ruminative Memories of Life Events Questionnaire. Of these, 113 also participated in the study of personality structure (92 of whom also completed the hypothetical scenario). (A total of 568 subjects participated in the study of personality structure.)

### Procedure

Subjects were recruited for the Ruminative Memories Study by sign-up sheets posted in the foyer of the Psychology building, as well as by a note given to students along with their (personality study) debriefing form.<sup>2</sup> All subjects were granted course credit for completing each of the questionnaires.

Subjects completed the Ruminative Memories Questionnaire under the supervision of the author or a trained research assistant. Participants were given verbal as well as written instructions. They were advised that, due to the personal nature of the questionnaire, all responses would be anonymous. To achieve this, yet still retain identification to match subjects to their personality data, subjects were instructed to put their name only on a consent form, which was kept separate from their questionnaire. Finally, subjects were advised that they maintained the right to terminate the study at any time. After completing the questionnaire, subjects were given a written debriefing. No subject left the study prior to its completion, and no

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<sup>2</sup>The debriefing form distributed after the personality questionnaire made no mention of undoing. Rather, it simply described the concept of personality structure.

subject appeared upset by the experience. On average, completion of the Ruminative Memories Questionnaire took approximately 40 minutes.

Subjects completing the personality questionnaire were also recruited from sign-up sheets, as well as from those who had completed the Ruminative Memories Questionnaire. Completion of the personality questionnaires took approximately 90 minutes, spread over two sittings. The personality study was also supervised by a trained researcher.

### Questionnaire Instruments

Ruminative Memories of Life Events Questionnaire. Subjects were asked to think about two of the worst things that ever happened to them. After listing the two events (in any order), along with when they occurred, subjects were asked to rate, on 7-point scales, how significant each event was for them at the time that it occurred as well as currently (scale range: 1 "Not very significant" to 7 "Extremely significant"). After these initial ratings, subjects were then asked a series of questions concerning the first event, followed by the same series of questions concerning the second event. The first question of the series asked subjects to briefly describe the event, including what led up to the event.

Subjects were then asked specifically whether anything unusual happened prior to the event, and if so, to describe what was unusual, thus enabling a classification of whether or not the event had exceptional circumstances associated with it.

In an effort to classify events along a number of theoretically meaningful dimensions, subjects were asked whether or not the event described was unexpected, his or her own fault, avoidable, sudden, and one that could ever happen again (each rated on a 4-point scale ranging from 1: "Not at all" to 4: "very much").

"Expectedness" relates to the foreseeability of events; while "avoidability" relates to whether the event was perceived to be constrained by other forces (i.e., whether it was "meant to be"). Asking if the event could ever happen again allows a classification of events in terms of whether future control possibilities exist for the subject.

Following the classification of events, subjects were asked how frequently they undid the event:

"When bad things happen, people sometimes wonder or think about how the outcome could have been altered or avoided. With respect to the event you described above, how often, within the first month after the event occurred, did you think, 'If only something had been different, the outcome wouldn't have turned out the way it did'?"

Response categories ranged from 1 ("Never") to 5 ("Very often"). Following this, respondents were asked to briefly describe their "if only" thoughts in an open-ended format. Open-ended responses were coded in terms of: (1) whether the subject wished to change a usual or an unusual incident to undo the event; and (2) whether the subject wished s/he had acted (i.e., an omission) or had not acted (i.e., a commission) to avoid the outcome. Coding by two independent judges was consistent for 87% and 80% of the cases for each of the coding dimensions, respectively.

Those who reported any undoing were subsequently asked to describe the thoughts in terms of how comforting, uncontrollable, distracting, frustrating, anxiety-provoking, guilt-inducing, depressing, and regretful these "if only" thoughts were on 5-point scales ranging from 1 ("Not at all") to 5 ("Extremely"). The descriptors "uncontrollable" and "distracting" were combined to form a single scale assessing the degree to which the undoing thoughts were considered disruptive ( $\alpha = .94$ ).

Likewise, the descriptors "frustrating," "anxiety-provoking," "guilt-inducing," "depressing," and "regretful" were combined to form a scale assessing the distress attributed by subjects to the undoing thoughts ( $\alpha = .79$ ).

Finally, to evaluate the persistence of the undoing thoughts, subjects were asked how frequently they still experience these thoughts (from 1: "Never" to 5: "Very often").

Personality Questionnaire. The packet of individual difference measures included a number of multi-scale personality questionnaires and individual scales measuring specific traits. Included among them were two questionnaires relevant to the present study. The first was the Five Factor Inventory (NEO-FFI), a short form version of the NEO Personality Inventory (Costa & McCrae, 1989). The FFI measures the five broadest dimensions of personality identified in analyses of trait descriptors (for reviews, see Digman, 1990, and Wiggins & Pincus, in press). The FFI measures each of these five factors — agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience — with brief 12-item scales. Validity coefficients for the FFI scales, in the form of peer and spouse correlations with self-reports, are among the highest reported in the personality literature (Costa & McCrae, 1989). The neuroticism scale, expected to be the most relevant of the Big 5 factors to the present study, includes items such as "I often feel inferior to others," "When I'm under a great deal of stress, sometimes I feel like I'm going to pieces," and "Too often, when things go wrong, I get discouraged and feel like giving up." Alpha (reliability) coefficients for the five FFI scales ranged from .75 (Openness) to .87 (Neuroticism) in the total sample of the personality structure study ( $N = 568$ ).

Also included in the packet was a brief measure of ruminating tendency called the rumination scale (Trapnell, 1991). Although correlated highly with neuroticism [ $r(109) = .66$ ], the rumination scale may be a more precise index of a "disposition to undo" than the broader-band FFI neuroticism scale because the rumination scale reflects an "undoing-like" cognitive style in its items, as opposed to the more affectively-toned items found on the neuroticism scale of the FFI. Sample items from the rumination scale include "I often ruminate or dwell over aspects of my life" and "I often reflect on episodes in my life that I should no longer concern myself with." The 10-item rumination scale had an alpha reliability coefficient of .88 in the total sample of the personality structure study.

Finally, dispositional tendencies to undo were assessed by means of a brief hypothetical scenario describing the events leading up to an automobile accident involving a university student. Following the scenario, subjects were asked to imagine themselves in the target student's position, and to estimate how frequently they would imagine how the accident could have been avoided on a scale ranging from 1: "Never" to 5: "Very often". Subjects were also asked to estimate how long they would continue to have their undoing thoughts (Range: 1: "Less than a week" to 5: "More than a year").<sup>3</sup>

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<sup>3</sup>Subjects were presented with one of twelve versions of the scenario, in a 3 (level of mutability) x 2 (severity of outcome) x 2 (gender of target victim) factorial design. ANOVAs including those subjects who also participated in the Ruminative Memories Questionnaire ( $n = 92$ ) produced a main effect for severity of outcome in terms of how frequently the subject would undo the event [ $F(1,80) = 7.53, p < .01$ ] and for how long the subject would persist with such thoughts [ $F(1,80) = 10.45, p < .01$ ]. Subjects who role-played experiencing a more severe accident reported undoing more often and more persistently than subjects who role-played experiencing a less severe accident. No other main effects or interactions approached significance. These effects mirror those found with the larger sample (those who did not participate in the Ruminative Memories Questionnaire;  $N = 319$ ).

## Results

### Events

Table 1 provides a summary of the 345 events described by the 174 subjects, along with the mean significance (both at the time the event occurred and currently). In general, events were rated by subjects as "very significant" ( $M = 6.34$ ,  $SD = 1.08$ ) at the time of their occurrence, an average of 4.4 years ago ( $Md = 3.00$ , Range = 0–16.5 years). Subjects rated the events as currently being "somewhat significant" ( $M = 4.39$ ,  $SD = 1.78$ ). Time since the event occurred was not related to estimates of current significance [ $r(337) = -.06$ , *ns.*].

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### Frequency of Undoing

When asked if they had thought during the first month after the event "if only something had been different ...," only 18% responded that they had "never" or "rarely" had such thoughts. In contrast, 64% reported that they had had these thoughts "often" or "very often." The median frequency of undoing was "often" ( $M = 3.77$ ,  $SD = 1.24$ ). The distribution of current frequency of undoing was very much the reverse: 66% reported "never" or "rarely" having such thoughts within the past month, while only 14% reported undoing "often" or "very often" within the past month. The median frequency of current undoing was "rarely" ( $M = 2.22$ ,  $SD = 1.13$ ). The frequency with which subjects were currently undoing their significant events was correlated with time since the event,  $r(338) = -.20$ ,  $p < .001$ . Not surprisingly, events occurring more recently were reported undone more frequently within the past month.

Although subjects described unusual prior circumstances for 45% of the events (i.e., 157 of 345 events), in only 47% of these cases did subjects report undoing these or other unusual circumstances. That is, only 22% of all events undone were undone by changing an unusual event or circumstance in the causal sequence.<sup>4</sup> In contrast, 72% of those who undid reported undoing prior events coded as usual. Six percent of undoing responses were too general to be coded. The undoing of unusual events or circumstances ( $M = 4.18$ ) was marginally more frequent than the undoing of usual events [ $M = 3.92$ ,  $t(131) = 1.82$ ,  $p = .08$ ]. Controlling for the frequency of undoing, the undoing of unusual events was not more distressing nor more disturbing than the undoing of usual events ( $F_s < 1.0$ ).

In terms of omitted vs. committed acts, 31% undid an omission (e.g., If only I [or someone else] had done something), 14% described a commission (e.g., If only I [or someone else] had not done something), while 23% undid a situation (e.g., If only the economy didn't collapse). An additional 32% described various combinations of the above categories.<sup>5</sup> While none of these groups differed from each other significantly in frequency of undoing, distress, or degree of disturbance attributed to the thoughts, weak trends suggested that commissions were seen as being slightly less distressing [ $F(3,245) = 1.57$ ,  $p < .20$ ] and less disturbing [ $F(3,245) = 1.84$ ,  $p < .15$ ] than omissions, combinations, and simply wishing the situation was different.

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<sup>4</sup>On average, subjects mentioned 1.9 counterfactuals per event ( $Md = 2$ ; range 0–7). To be counted in the "unusual" group, at least one of the subject's counterfactuals had to be based on an unusual event.

<sup>5</sup>Coding for omission/commission was based on the first three counterfactuals described for each event, or the first two if the third was very general (e.g., "If only it didn't happen"). When subjects provided multiple counterfactuals (i.e., more than three), the last ones tended to be very general.

### Predictors of a Lack of Undoing

To investigate factors that predicted an absence of undoing, the frequency of undoing at the time of each event was dichotomized such that those who said they "never" (6% of events) or "rarely" (12% of events) undid that event were collapsed into one group (62 events), with the remaining events (i.e., those which were undone at least sometimes) collapsed into a second group (278 events). (Note that the event is the unit of analysis.)

Event and situation factors that were used to predict a presence versus absence of undoing included event significance ratings (i.e., how significant the event was for the individual at the time of its occurrence), whether the event was perceived to be inevitable, the existence of unusual circumstances prior to the event, and the extent to which the subject felt that he or she was at fault for the event. Event inevitability was dichotomized from the 4-point avoidability rating, such that events coded as "not at all avoidable" were coded as inevitable, while the remaining events ("a little" to "very much avoidable") were coded as avoidable.

Using Wilks' method for stepwise inclusion of predictors in a discriminant function analysis (predicting whether or not undoing occurred), fault, significance of the event, and inevitability of the event combined on the first three steps, respectively, to discriminate events that were undone from events that were not undone [ $X^2(3, N = 335) = 32.17, p < .001$ ].<sup>6</sup> The loading matrix of correlations between predictors and

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<sup>6</sup>This discriminant analysis was also performed including ruminativeness scores as a predictor variable. Since ruminativeness did not enter the function as a significant predictor of whether or not undoing occurred, and excluded 123 cases due to missing personality data for 62 subjects (i.e., those who participated in the Ruminative Memories Questionnaire, but not the personality structure study), the analysis reported excludes the personality data.



the discriminant function, as seen in Table 2, suggests that events (1) where the subject was at fault, (2) which were highly personally significant, and (3) which were not inevitable were most likely to result in undoing. Each of these variables correlated greater than .60 with the discriminant function. The three combined produced a canonical correlation of .30. The discriminant function successfully discriminated between events that were and were not undone in 67% of cases. Of those misclassified by the discriminant function, 77% were classified as events that ought not to have been undone when in fact they were undone.

Interestingly, the presence vs. absence of unusual circumstances prior to the event did not reliably discriminate between events that were undone and those that were not undone.

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Insert Table 2 about here

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### Consequences of Undoing

Excluding those who reported no undoing, the frequency of undoing at the time of the event was correlated with the extent to which the thoughts were described as disruptive (i.e., "distracting" and "uncontrollable"),  $r(326) = .54, p < .001$ , and as distressing,  $r(326) = .56, p < .001$ , such that the more frequently one was undoing the stressful event, the more disruptive and distressing were the thoughts. The frequency of undoing at the time of the event was also weakly correlated with how comforting the thoughts were,  $r(326) = -.10, p = .08$ , such that those undoing most frequently tended to find the thoughts least comforting.

After controlling for the frequency of the undoing thoughts, the extent to which the event could happen again was weakly correlated with distress ratings [partial  $r(322) = -.11, p < .05$ ], and comforting ratings [partial  $r(321) = .11, p < .05$ ]. Events that could happen again tended to be paired with less distressing and more comforting undoing thoughts. However, the likelihood of the event happening again was not significantly related to the degree to which the undoing thoughts were disruptive [partial  $r(322) = .05, ns.$ ]. Table 3 lists subjects' ratings of the likelihood that a given event might happen again. Events rated most likely to recur included feared or actual pregnancies, fights and arguments, and criminal victimizations. Events rated least likely to recur included deaths and academic events.

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 Insert Table 3 about here  
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### Consistency in Undoing and the Role of Dispositions

The correlation between subjects' reports of how frequently they undid event #1 and event #2 at the time of the events was non-significant,  $r(164) = .06$ . This apparent lack of association is likely owing to the highly skewed distributions of undoing thoughts (i.e., most subjects were undoing "often" or "very often"). The correlation between subjects' ratings of current undoing of Event #1 and Event #2, controlling for differences in time since the event, was  $r(165) = .22, p < .01$ .

Undoing across the two stressful life events was averaged, and then correlated with the frequency of undoing for the hypothetical scenario, as well as with the Big 5 personality factors and the rumination scale. The mean frequency of undoing at the

time of the stressful life events correlated with subjects' estimates of how frequently they would undo the accident in the scenario,  $r(88) = .28$ ,  $p < .01$  (after controlling for version of the scenario). How frequently subjects were currently undoing their life events was correlated with subjects' estimates of how long they would continue to undo in the accident scenario,  $r(86) = .34$ ,  $p < .01$  (controlling for scenario version and mean time since the life events).

Among the personality measures, only neuroticism [ $r(112) = .24$ ;  $r(109) = .32$ ] and one's tendency to ruminate [ $r(111) = .30$ ;  $r(108) = .29$ ] were significantly ( $p < .01$ ) correlated with subjects' mean frequency of undoing at the time of their stressful events, and their mean frequency of current undoing, respectively (see Table 4). Both neuroticism and one's tendency to ruminate correlated with estimates of the frequency of undoing for the hypothetical scenario [neuroticism:  $r(88) = .37$ ; rumination:  $r(87) = .44$ ,  $p$ 's  $< .001$ ] and estimated persistence of the undoing for the hypothetical scenario [neuroticism:  $r(87) = .28$ ; rumination:  $r(86) = .28$ ,  $p$ 's  $< .01$ ].

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Insert Table 4 about here

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To consider whether neuroticism and rumination scores predict undoing independent of one another, both were simultaneously entered in two multiple regression equations (one predicting frequency of undoing at the time the event occurred, and the second predicting current frequency of undoing, after controlling for mean time since the events). Although neuroticism and one's tendency to ruminate were quite highly correlated [ $r(109) = .66$ ], the regression predicting frequency of undoing at the time of the events indicated that one's tendency to ruminate uniquely

predicted marginal variance ( $sr^2 = .042, p < .05$ ). However, this finding was not replicated in the second regression (predicting frequency of current undoing;  $sr^2 = .018, p < .15$ ; see Table 5). Neuroticism did not account for significant unique variance in initial frequency of undoing ( $sr^2 = .001, p > .50$ ), nor in current frequency of undoing ( $sr^2 = .020, p < .15$ ).

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Insert Table 5 about here

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To examine the combined influence of personality and situational variables on the frequency of undoing at the time of the event and currently, undoing frequencies were predicted from ruminativeness scores, event significance (at the time of the event), fault, and event inevitability in two hierarchical regression equations. With the event as the unit of analysis, and controlling for time since the event (Step 1), both ruminativeness (entered on the second step) and situational factors (entered as a block on the third step) produced significant  $R^2$  increments (see Table 6) in predicting undoing at the time of the event. Ruminativeness ( $\beta = .17$ ), event significance ( $\beta = .24$ ), and fault ( $\beta = .17$ ) were significant ( $p < .01$ ) predictors of frequency of undoing at the time of the event, while inevitability approached significance ( $\beta = .12, p = .07$ ). Interaction terms (ruminativeness x situation factors), entered after "main effect" variables, did not produce an  $R^2$  increment [ $F_{inc}(3,203) = 1.40, p = .25$ ], and are therefore not included in the table.

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Insert Table 6 about here

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In the second regression, predicting current frequency of undoing, only ruminativeness ( $\beta = .19, p < .01$ ) produced a significant  $F^2$  increment (see Table 7). Again, no interaction terms (ruminativeness x situation factors) produced a significant  $F^2$  increment [ $R_{inc}(3,207) = 1.82, p = .14$ ].

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Insert Table 7 about here

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## Discussion

In general, undoing thoughts were reported very frequently and across a wide array of significant, real-life events. In fact, only 6% of the 345 events described by subjects were reported not undone at all, and only 12% were undone just rarely within the first month of the event's occurrence. These high rates of reported undoing corroborate the findings of Davis et al. (1991) and lend further credence to the original theorizing by Kahneman and Tversky (1982) and Kahneman and Miller (1986). Given that most of the events reported by subjects in this investigation were less traumatic than those studied by Davis et al. (1991) or those used in most previous hypothetical scenarios (e.g., Miller & McFarland, 1986; Wells & Gavanski, 1989), the frequency with which these events were undone speaks to the robustness of the undoing phenomenon.

The discriminant function analysis suggested that factors that combined to predict a lack of undoing included an absence of personal fault, the inevitability of the event, and less significant event appraisals. However, this discriminant function was not entirely accurate, correctly discriminating events that ought to have been undone from those which ought not to have been undone in only 67% of cases. It is noteworthy that most of the misclassified events were categorized incorrectly because the event was undone despite an absence of personal fault, and ratings of less significance and inevitability. In effect, the discriminant function identified factors, and thus events, that are less likely, as opposed to unlikely, to be undone.

Notably absent in the discriminant function was the presence versus absence of unusual circumstances prior to the events as a predictor of undoing. That is, the lack of unusual circumstances prior to the life event did not seem to deter people from

undoing. Neither did the existence of unusual circumstances necessarily focus the undoing thoughts on these salient features: only approximately half of those describing unusual circumstances preceding the event actually reported undoing these or other unusual circumstances. These findings support the earlier results of Davis et al. (1991), and suggest that the role of unusual events in undoing, as articulated in the original theoretical formulations (Kahneman & Miller, 1986; Kahneman & Tversky, 1982) may need to be qualified.

To investigate possible reasons why subjects were not undoing the unusual preceding events they reported, a post hoc review of these cases (i.e., those cases where a usual event was reportedly undone despite the existence of unusual circumstances) was undertaken. The review indicated that unusual events not undone tended to be unchangeable (e.g., the rapid turn of events that led to the economic collapse of Calgary in 1982) or causally irrelevant unusual events (e.g., a loved one being diagnosed with cancer shortly after moving to a new city). This suggests that unusual events will only be the target of the counterfactual if they are causally implicated in producing the outcome, and if they are, in fact, mutable. While this point may seem intuitively obvious, it does indicate that people are replaying the causal sequence of the actual scenario, seeking mutable events or circumstances, rather than simply selecting salient prior events (based, for instance, on their availability), and playing out the scenario. If people are, in fact, replaying the actual scenario, this may explain the relatively common reports of usual events that are targeted by victims for undoing. That is, to play out the scenario, one must recall most, if not all, causally significant events, and not simply the most exceptional.

As this prior discussion implies, the existence of unusual circumstances is not necessary for undoing to occur. Consistent with Davis et al.'s (1991) findings, most subjects described undoing quite typical events. Similarly, most reported undoing the theoretically less mutable omissions (vs. commissions). Furthermore, none of these distinctions (undoing unusual events or committed acts) were reliably associated with more frequent undoing, nor were they rated as more disturbing or distressing.

While most usual events and omitted acts lack the salience of unusual events or committed acts, these data suggest that they are not typically ignored if they are at all mutable. Given that usual events and omitted acts are more prevalent in terms of base-rates (e.g., there is an infinity of acts one could have done, but only a limited number of things one actually did; see Davis et al., 1991, for a more detailed discussion), it is perhaps not surprising that people, very much affected by their unfortunate circumstance, should gravitate to these less obvious, but more likely, preceding events.

Although the affective consequences (e.g., distress) could not be predicted from the content of the undoing thoughts (i.e., usual/unusual, omission/commission), they could be predicted from the frequency with which subjects reported undoing. Specifically, the more frequently subjects reported undoing, the more they described their thoughts to be distressing and disturbing.

While this was the general finding, there was a slight indication that, at least with some types of events, undoing may not have such unfavorable consequences. Specifically, among events that subjects described as having the potential to recur (e.g., arguments, pregnancies, criminal victimizations), undoing was rated by subjects as being somewhat less distressing and somewhat more comforting, suggesting that



some subjects may, under these circumstances, actually benefit in certain ways from their undoing thoughts. Although these effects were weak in the present study, they are consistent with previous research (Davis et al., 1991) and theorizing (Taylor & Schneider, 1989). Further, they are congruent with Janoff-Bulman's argument that blaming one's own modifiable behaviors for negative outcomes (even if the outcomes were not objectively one's own fault) is an adaptive, and quite common, coping strategy among victims (Janoff-Bulman, 1979; Janoff-Bulman & Lang-Gunn, 1988).

The final question which this research addresses concerns the role of individual differences in undoing. Of the five broadest dimensions of personality, a propensity to undo appears to be most closely allied to neuroticism. It was only this factor that was significantly and consistently correlated with the various measures of undoing (e.g., undoing at the time of the event, current undoing, and undoing in response to the hypothetical scenario). Although the relations between the frequency of undoing and neuroticism were not large, accounting for only approximately 10% of the variance in undoing frequencies, they were highly consistent. That is, the associations observed between this personality variable and the frequency of undoing for life events was consistent over time (i.e., undoing at the time of the events vs. current undoing), and methodologies (i.e., real-life events vs. a role-played hypothetical scenario).

Since neuroticism is a general construct of negative affectivity, subsuming a host of more specific traits, such as low self-esteem, depression, and anxiety, a more specific measure of one's tendency to ruminate (Trapnell, 1991) was expected to better assess one's propensity to undo. Unlike the neuroticism scale, which has an affective tone (i.e., 8 of the 12 items contain the word "feel"), the rumination scale items reflect a cognitive style (e.g., "I often reflect...", "I often re-evaluate..."), with some items quite

clearly relating to undoing (e.g., "I don't waste time re-thinking things that are over and done with," "Often I'm playing back over in my mind how I acted in past situations").

Given this fundamental difference, it is surprising that ruminativeness was not consistently superior to neuroticism in its relation to the frequency and duration of undoing thoughts -- both in terms of undoing actual life events and a hypothetical scenario. That is, although ruminativeness predicted initial undoing independently of neuroticism, it did not predict current undoing independently of neuroticism. This suggests that undoing may be, at least in part, a cognitive style or response that is most prevalent during episodes of negative affect (see Davis et al., 1991, for a discussion). Thus, when people are depressed, they may be particularly vulnerable to ruminative thoughts and, more specifically, undoing thoughts.

Given that subjects who reported undoing most frequently described these thoughts as particularly distressing, it appears that undoing (in the absence of future control possibilities) may reinforce and perpetuate one's negative affective state. This view may be an example of what Pyszczynski and Greenberg (1987) term the "depressive self-focusing style," wherein depressed individuals are believed to reinforce their negative affective state by focusing on an unachievable desired state which is discrepant from their actual state. The depressed individual's inability to deviate from this pattern of thought serves to perpetuate and intensify the negative affect (Pyszczynski & Greenberg, 1987; see also Wenzlaff, Wegner, & Roper, 1988).

It is important to note evidence from the present study suggesting that the roles of personality and situational factors are independent in their influence on the frequency of undoing. While situational factors (i.e., event significance at the time of the event, assessments of personal fault, and to a lesser extent, event inevitability) and

personality (ruminativeness) both predict independent variance in frequency of undoing at the time of the event, only personality (i.e., ruminativeness) predicted the frequency of current undoing. Thus, it appears that the existence of more "undoable" situational factors increases the likelihood of undoing and adds significantly to the initial frequency with which people generally undo negative events, but this situational impact may be relatively short-lived. The duration of the undoing thoughts seems to be best predicted from individual difference variables.

At a more general level, however, the frequency with which people reported undoing events was not overwhelmingly predicted from the situational and individual difference variables included in the present study. This is not to say that other variables (either situational or personality) are likely to have been better able to predict the occurrence or frequency of undoing. Rather, it appears that much of this unpredictability stems from the fact that undoing occurred so frequently, even among events that were situationally least "undoable." Although it is likely that this skewness attenuated relations between variables, data transformations to normalize the data had no effect on the results.

#### Limitations of the Study

One weakness of the present study concerns the subjective nature of the data. Although objective information about situational factors surrounding the life events reported was sought, it is possible (and in some cases likely) that these self-reports may be biased in a number of ways. Among the most serious biases may be in the assessment of fault. That is, personal fault may be assigned on the basis of a counterfactual, such that if one could have done something to avoid a negative outcome, one may be more likely to accept some blame or fault. This is a common

finding among rape victims, who have been noted to accept more blame than observers typically ascribe them (see Abbey, 1987; Burgess & Holmstrom, 1974; Janoff-Bulman & Lang-Gunn, 1988).

The concept (and measurement) of avoidability presents the same problem: a retrospective recall of an event's avoidability is likely to be based, at least partly, on the plausibility of salient counterfactuals. To guard against this source of bias in the present study, avoidability was dichotomized into avoidable events and "not at all" avoidable (i.e., inevitable) events, thus collapsing into one category the ratings of "a little," "somewhat," and "a lot" (where one might expect most counterfactual bias to occur). Future research will need to consider alternatives that will keep such biases to a minimum, including, perhaps, the use of independent judges to rate the "objective" blameworthiness and avoidability of outcomes.

Retrospective recall of undoing at the time of the event is also likely to be a variable that contains bias. That is, if people are estimating how frequently they undid an event several years (or even months) ago, their estimates are likely based, at least in part, on their current frequency of undoing and their current affective state (see for example Ross, 1989). Overcoming this bias requires longitudinal data, with assessments of (current) undoing occurring at various time intervals following the event (see Davis et al., 1991, Study 3 for an example of this methodology).

These limitations notwithstanding, the present research has been useful in identifying potentially important situational and individual difference variables that affect the antecedents and consequences of undoing. As well, this research suggests that counterfactuals are typical following a wide assortment of life events. The rarity of events not undone indicates that key situational factors (such as less significant events,

inevitable events, and events where the individual is not at fault) do not eliminate undoing, but simply lessen the probability that an event will be undone.

In sum, this study has demonstrated that undoing is a complex phenomenon, likely involving both situational and individual difference variables. Indeed, there appears to be an important difference between initial undoing and long-term undoing, such that situation variables and personality factors appeared to predict the frequency with which people reported initially undoing their life events, whereas only the personality variables could predict current frequency of undoing.

Why this difference exists is, at this point, a matter of speculation. That is, although we are beginning to understand the predictors of undoing, our knowledge regarding the process of undoing is lagging behind. Specifically, it would be useful to understand why people replay significant negative events, and why people try to generate counterfactuals to events that cannot possibly recur, assuming it is a consciously activated process. Once data on these important questions have been collected, we may begin to consider therapeutic interventions which might encourage helpful counterfactuals to potentially recurring events, or perhaps discourage dysfunctional counterfactuals to non-recurrrable events.

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**Table 1****Summary of Significant Life Events by Frequency**

<b>Event</b>	<b>Frequency Reported</b>	<b>Mean Event Significance<sup>7</sup></b>	
		<b>Then</b>	<b>Now</b>
Argument or Fight	50	6.4 (1.0)	4.5 (1.7)
Relationship Break-up	48	6.5 (0.7)	4.2 (1.7)
Accident or Injury	46	6.1 (1.3)	3.4 (1.8)
Death of Grandparent	31	6.2 (0.9)	4.7 (1.4)
Death of Friend, Relative, Pet	23	6.7 (0.7)	5.0 (1.5)
Narrow Escape from Danger	22	6.1 (1.2)	3.5 (1.7)
Moral Transgression or Arrest for Minor Crimes	20	6.4 (1.3)	4.0 (1.9)
Family Break-up/Parents' Divorce	17	6.3 (1.5)	5.0 (1.7)
Sexual Assault or Rape	13	6.0 (1.6)	5.9 (1.3)
Serious Illness	13	6.1 (1.7)	5.1 (1.7)
Victim of Crime (not sexual)	12	6.4 (1.0)	4.1 (1.9)
Academic Events (e.g. dropping out)	12	6.7 (0.7)	4.5 (1.9)
Work-Related or Financial Problem	9	6.0 (1.3)	3.0 (1.7)
Moving to New Location	9	6.6 (0.5)	4.4 (1.7)
Death of Parent	8	6.8 (0.7)	5.9 (1.1)
Pregnancy (Real or Feared)	5	7.0 (0.0)	5.6 (1.3)
Death of Sibling	2	7.0 (0.0)	5.5 (2.1)
Attempted Suicide: Friend/Relative	2	7.0 (0.0)	6.0 (1.4)
One's own Divorce	2	7.0 (0.0)	4.0 (0.0)
Death of Spouse	1	7.0 (0.0)	7.0 (0.0)
<b>Total</b>	<b>345</b>	<b>6.3 (1.1)</b>	<b>4.4 (1.8)</b>

<sup>7</sup>Event Significance was rated by subjects on a 7-point scale, with 1 = "Not very significant" and 7 = "Extremely significant." Standard deviations are given in parentheses.

**Table 2**

**Discriminant Function Analysis Predicting Events Undone from Events Not Undone.**

Step	Predictor Variable	Corr. of Pred. Var. with Disc. Function	F Prior to Entry	Pooled Within Group Correlations		
				Fault	Signif.	Inevit.
1	Fault	0.635	13.69 $p < .001$			
2	Event Significance	0.612	13.02 $p < .001$	-.03		
3	Inevitable	0.609	6.11 $p < .02$	.29	-.01	
–	Unusual	–0.013	1.88 $p = .18$	–.09	.14	–.12
	Canonical R	0.304				
	Eigenvalue	0.102				

**Table 3****Self-Reports of Likelihood of Recurrence By Event**

<b>Event</b>	<b>Frequency Reported</b>	<b>Mean Likelihood of Event Happening Again<sup>8</sup></b>
Argument or Fight	50	2.8 (1.0)
Relationship Break-up	47	2.5 (1.1)
Accident or Injury	43	2.5 (1.2)
Death of Grandparent	30	2.1 (1.2)
Death of Friend, Relative, Pet	23	2.2 (1.3)
Narrow Escape from Danger	22	2.6 (1.2)
Moral Transgression or Arrest for Minor Crimes	20	2.0 (1.1)
Family Break-up/Parents' Divorce	14	2.1 (1.4)
Sexual Assault or Rape	13	2.2 (1.2)
Serious Illness	13	2.4 (1.0)
Victim of Crime (not sexual)	12	2.7 (1.2)
Academic Events (e.g. dropping out)	12	1.6 (0.9)
Work-Related or Financial Problem	9	2.6 (1.2)
Moving to New Location	9	2.7 (0.9)
Death of Parent	8	2.3 (1.5)
Pregnancy (Real or Feared)	5	3.0 (1.4)
Death of Sibling	2	1.0 (0.0)
Attempted Suicide: Friend/Relative	2	2.0 (1.4)
One's own Divorce	2	1.0 (0.0)
Death of Spouse	1	1.0 (0.0)
<b>Total</b>	<b>337</b>	<b>2.4 (1.2)</b>

<sup>8</sup>Range = 1: "Not at all" to 4: "Very." Standard deviations are in parentheses.

**Table 4**

**Personality Correlates of Frequency of Undoing**

Variable	Rumin. Scale	NEO-FFI (Big 5)					Freq. of Undoing for life events		Hypothetical Scenario	
		Neur	Agree.	Consc.	Extra.	Open.	Then	Now	Freq.	Persist
<u>Life Events:</u>										
–Freq. of Undoing Then	.30*	.24*	–.07	.06	–.09	.05				
–Current Freq. of Undoing	.29*	.32**	–.08	.01	–.02	.08	.32**			
<u>Hypothetical Scenario:</u>										
–Freq. of Undoing	.44**	.37**	–.04	–.08	–.10	–.17	.28*	.10		
–Persistence	.28*	.28*	–.06	–.19	–.04	–.09	.16	.35**	.48**	
Means	3.80	3.16	3.56	3.65	3.47	3.50	3.79	2.21	3.48	2.88
Std. Dev.	.64	.76	.46	.54	.55	.57	.91	.84	1.01	1.29
n	111	112	112	112	112	112	174	174	93	92

\* p < .01

\*\* p < .001

**Table 5****Regression of Neuroticism and Disposition to Ruminate on Frequency of Undoing.<sup>9</sup>****(a) Frequency of Undoing at Time Event Occurred**

Step	Variable	$\beta$	$sr^2$	$p$
1	Rumination	.27	.042	< .05
1	Neuroticism	.04	.001	> .50
				$R = .30$ $p < .01$

**(b) Frequency of Current Undoing**

Step	Variable	$\beta$	$sr^2$	$p$
1	Time Since Event	-.10	.010	> .25
2	Rumination	.18	.018	< .15
2	Neuroticism	.19	.020	< .15
				$R = .37$ $p < .01$

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<sup>9</sup>Frequency of Undoing is a mean frequency of the two events described by each subject.

**Table 6**

**Hierarchical Regression of Ruminativeness and Situation Variables on Frequency of Undoing at Time of Event.**

Step	Variable	Undoing Then	Time Since Event	Rumin.	Event Signif.	Inevit.	Fault	Stdized. $\beta$	$sr^2$ increment
1	Time Since	-.18						-.10	.03**
2	Rumin.	.22	-.16					.17**	.04**
3	Event Sig.	.30	-.17	.09				.24***	
3	Inevit.	.22	.02	.12	.06			.12°	
3	Fault	.25	-.07	.02	.10	.35		.17**	.13***
	Means	3.84	4.36	3.80	6.39	1.78	2.16		
	Std. Dev.	1.25	3.98	.65	1.05	.41	1.20		$R = .44^{***}$

°  $p < .10$

\*\*  $p < .01$

\*\*\*  $p < .001$

$N = 212$  (Events)

**Table 7**

**Hierarchical Regression of Ruminativeness and Situation Variables on Current Frequency of Undoing.**

Step	Variable	Undoing Now	Time Since Event	Rumin.	Event Signif. (Then)	Inevit.	Fault	Stdized. B	$sr^2$ increment
1	Time Since	-.18						-.15*	.03**
2	Rumin.	.23	-.14					.19**	.04**
3	Event Sig.	.06	-.18	.09				.01	
3	Inevit.	.13	.03	.13	.06			.11	
3	Fault	.05	-.06	.01	.09	.35		.00	.01
	Means	2.21	4.56	3.81	6.39	1.79	2.17		
	Std. Dev.	1.10	4.04	.64	1.04	.41	1.20		$R = .30^{**}$

\*  $p < .05$

\*\*  $p < .01$

$N = 216$  (Events)